Electric and Magnetic Fields Program Office of Power Delivery Systems

Four National Magnetic Field Exposure Facilities

OFFICE OF Power TECHNOLOGIES

Success Stories



The Office of Power Technologies is part of the Office of Energy Efficiency and Renewable Energy

National Exposure Facilities are key to credible research on whether exposure to electric and magnetic fields affects human health

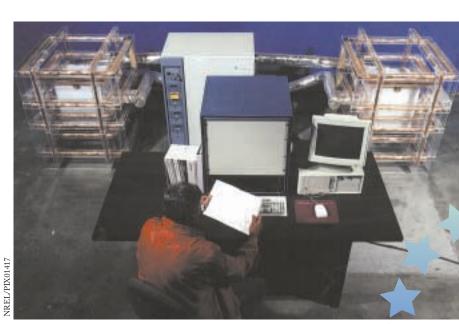
What better way is there to address a scientific issue plagued with nonreproducible studies than to have the recognized experts build four identical facilities for laboratory research? The possibility that electric and magnetic fields (EMF) generated by transmission lines, household appliances, or workplace machinery cause adverse health impacts has created scientific dispute, as well as strong emotions.

The U.S. Department of Energy (DOE) has been conducting highly regarded research on EMF for more than 15 years. Since 1993, DOE has spearheaded a multi-agency effort to further enhance the credibility of EMF research nationally. Conducting solid laboratory research on EMF requires the ability to carefully control and measure the fields generated, as well as to assess biological impacts. Until recently, few facilities had both the physics and the biology capabilities needed.

Highlights

- Four state-of-the-art exposure systems built
- Credible, replicable research on possible health impacts of exposure to EMF
- Improved methodology for experiments established
- **Internationally regarded as the** standard of excellence for EMF research
- Research results compiled into a 1998 report to the U.S. Congress.

In response to a Congressional mandate in the Energy Policy Act of 1992, DOE is collaborating with the National Institute of Environmental Health Sciences (NIEHS) to develop a base of high-quality laboratory research on the possible effects of EMF on human health. In addition to being dependable and replicable, this research explores possible mechanisms for the potential health impacts being evaluated. To further this effort, DOE designed and built four state-of-the-art exposure systems for conducting EMF laboratory studies. These National Magnetic Field Exposure Facilities have been established at four different federal laboratories operated by either DOE or the



This magnetic field exposure facility at DOE's Pacific Northwest National Laboratory is one of four built by DOE to allow federal laboratories to conduct credible, reproducible laboratory research on the biological effects of electric and magnetic fields.

Four National Magnetic Field Exposure Facilities



National Institute of Environmental Health Sciences

> National Institute of Occupational Safety and Health

National Institute of Standards and Technology

Organizations Matching Government Funds for the RAPID Program:

American Public Power Association

> Edison Electric Institute

Electric Power Research Institute

> Empire State Electric Energy Corporation

National American Rural Electric Cooperative Association

> National Electric Manufacturers Association

National Institutes of Health:

- Food and Drug Administration, Rockville, Maryland
- National Institute of Occupational Safety and Health, Cincinnati, Ohio
- Oak Ridge National Laboratory, Oak Ridge, Tennessee
- Pacific Northwest National Laboratory, Richland, Washington.

The four exposure systems provide all the control features necessary for accurate replication of research. The computeroperated systems precisely control both environmental conditions and electromagnetic field strengths. Each system includes two identical chambers, of which one is randomly chosen to be active, while the other serves as a control. By running the experiments in this blinded manner, the possibility of experimental artifacts is substantially reduced. Experiments to be conducted at each facility are selected by a steering committee with members from NIEHS and DOE. The facilities are open to visiting scientists from the research community at large. DOE evaluates all

NIEHS-funded research and assists the research teams in correcting problems with experimental design and EMF exposure.

The National Magnetic Field Exposure Facilities program is regarded internationally as the standard of excellence for EMF research. Results of research conducted with the four exposure systems have been included in a 1998 report to Congress. The program has already produced a steady improvement of exposure systems and methodology for EMF experiments.

The National Magnetic Field Exposure
Facilities program is just one part of the fiveyear, \$44 million Research and Public
Information Dissemination (RAPID) Program
authorized by Congress in 1992 to supplement
ongoing EMF research efforts and accelerate
public awareness about EMF. Half of the
money for the DOE-administered RAPID
Program is contributed by the utility and
manufacturing organizations listed at the left.
DOE does the engineering research; NIEHS
does the health research; and the two agencies
combine efforts to communicate with
the public.

For More Information:

Visit the National Magnetic Field Exposure Facilities Web site at: http://www.niehs.nih.gov/emfrapid/html/regfac.htm

or call the EMF Infoline: (800)-363-2383

Electric and Magnetic Fields Program, EE-141 U.S. Department of Energy 1000 Independence Avenue, SW Washington, DC 20585 (202)-586-1482

U.S. Department of Energy and National Institute of Environmental Health Sciences. *EMF RAPID: Annual Report for Fiscal Year 1996*. DOE/EE-0130, 1997.

www.niehs.nih.gov/emfrapid/

reptocongress/ANN.REP96.html

or contact:

Energy Efficiency and Renewable Energy Clearinghouse (EREC) P.O. Box 3048 Merrifield, VA 22116 (800)-DOE-EREC

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